U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos. 50-206/86-21, 50-361/86-18 and 50-362/86-18

Docket Nos. 50-206, 50-361 and 50-362

License Nos. DPR-13, NPF-10 and NPF-15

Licensee: Southern California Edison Company
2244 Walnut Grove Avenue
Rosemead, California 91770

Facility Name: San Onofre Nuclear Generating Station - Units 1, 2 and 3

Inspection at: San Onofre Nuclear Generating Station

Inspection Conducted: May 19-22 and 27-30, 1986

Inspector: H. S. North, Senior Radiation Specialist — Date Signed: 6/18/86

Approved By: G. P. Yuhas, Chief, Facilities Radiation Protection Section — Date Signed: 6/19/86

Summary:

Inspection on May 19-22 and 27-30, 1986 (Report Nos. 50-206/86-21, 50-361/86-18 and 50-362/86-18)

Areas Inspected: Routine, unannounced inspection of licensee action on previous inspection findings, a meeting concerning radioactive liquid effluent reduction program, Unit 1 PASS, Health Physics management controls, occupational exposure during the Unit 2 outage, dewatering the Unit 1 refueling cavity, review of licensee reports, followup on Information Notices, and facility tours.

Inspection procedures addressed included 30703, 83722, 83729, 83723, 83724, 83725, 83726, 83728 and 92701.

Results: Of the areas inspected, no violations or deviations were identified.

DETAILS

1. Persons Contacted

*M. Wharton - Deputy Station Manager
J. Albers - Supervisor Unit 2/3 Health Physics (HP)
C. Chiu, Ph.D. - Assistant Division Manager, Technical Division
*C. Couser - Compliance Engineer
*R. Jervey - Quality Assurance Engineer
*P. Knapp - Manager HP
J. Madigan - Supervisor Unit 1 HP
G. McLandrich - Supervising Engineer
*P. Penseyers - Chemistry Supervisor
J. Reilly - Manager, Technical Division
*R. Warnock - HP Engineering Supervisor

* Denotes attendance at the exit interview on May 30, 1986. In addition to the individuals identified above, the inspector met and held discussions with other members of the licensee's and contractors staff.

2. Corrections

Inspection Report No. 50-206/86-12, Section 4, Occupational Exposure During Extended Outages, Unit 1 (Closed) Followup (50-206/86-02-03) should read (50-206/86-02-06).

3. Licensee Action on Previous Inspection Findings

(Closed) Followup (50-206/86-02-01)

Licensee identified item, initially reported in LER 50-206/85-15-LO, related to the discovery of two holes in the containment/stack sample line to monitors R-1211 and R-1212. Two licensee reports were reviewed. A memorandum, dated March 20, 1986, Subject: RT 1211/1212 Sample Line Dilution Determination San Onofre Nuclear Generating Station, Unit 1, addressed the measurement technique used and reported the dilution of sample line air (5.7%) resulting from the holes. A memorandum, dated March 27, 1986, Subject: Evaluation of RT 1211/1212 Sample Line Dilution, Re Log Assignment JTRCC-241. The evaluation included an examination of the estimated error bounds for releases evaluated using monitors R-1211/1212, the impact of a 5.7% dilution of the sample stream and the method of evaluation of Plant Vent Stack discharges. The licensee concluded that the error introduced by the in leakage to the sample stream was not significant when compared with the overall measurement error and the frequency of use of R-1211/1212 in the calculation of effluent releases. Changes in previously submitted semiannual effluent reports were not considered warranted.

This matter is considered closed.

(Open) Followup (50-206, 361 and 362/86-02-02)

Licensee identified item related to the reporting of exceedences of NPDES limits to NRC. The licensee had determined that a revision of Technical Specifications was required to more clearly define the reporting requirements with respect to NPDES violations. The licensee believed that minor exceedences of specific parameters in the NPDES permit should not be reportable. Reports to NRC should be limited to significant environmental events. The licensee plans to address these issues and document the SCE position with respect to these matters in a memorandum by June 30, 1986.

This matter will be reviewed during a subsequent inspection.

(Closed) Followup (50-206/86-02-05)

Inspector followup item concerning internal exposures during the Unit 1 outage. Followup accomplished during inspection of Occupational Exposure During Extended Outages (Unit 2), (Report Section 7). This matter is closed.

(Closed) Unresolved Item (50-361, 362/86-10-01)

Inspector identified item relating to ventilation on the 37 foot elevation Radwaste Building, Units 2/3. Health Physics Engineering documented a review of the Radwaste Building ventilation in a Memorandum to File dated April 16, 1986, Subject: Radwaste Building Ventilation. The memorandum noted that several Design Change Packages (DCP) had been completed and accepted by operations related to ventilation in the area. The DCP's provided ventilation system interlocks which closed supply and exhaust dampers to the area and modified the HVAC fan logic. With the Radwaste Building rollup door open approximately, 175 cfm of outside air enters the building via the rollup door pathway. FSAR section addressing radwaste area ventilation, 9.4.2.1.2.1 B. Radwaste Area, states in part: "...The radwaste area is maintained at a slightly negative pressure...." During a tour of the facility the inspector verified that with the rollup door and the leaf doors to the Auxiliary Building hallway open there was a slight air flow into the Auxiliary Building. This matter is considered resolved and closed.

(Closed) Followup (50-361/86-10-02)

Inspector identified item relating to conformance of procedures to the guidance contained in IE Information Notice No. 85-92: Surveys of Wastes Before Disposal From Nuclear Reactor Facilities. Procedures related to surveys of potentially contaminated materials and release of such materials as nonradioactive waste were examined. The procedures included:

S0123-VII-7.3, Contamination Surveys;

S0123-VII-7.3.1, Release of Tools, Materials, Vehicles and Equipment from Red Badge Zones;

S0123-VII-7.3.2, Release of Potentially Contaminated Items from the Restricted Area; and

S0123-VII-8.2.11, Release of Potentially Contaminated Liquids, Sludges, Slurries, and Sands to Unrestricted Areas.

It was noted that the procedures had been revised, consistent with the information notice, specifying that materials containing radioactive materials were not to be released. This matter is closed.

No violations or deviations were identified.

4. Meeting Concerning Liquid Effluent Reduction Program

On May 22, 1986, Messers. J. Reilly, Manager and Dr. C. Chin, Assistant Division Manager, Technical Division and G. McLandrich, Supervising Engineer met with Mr. J. Martin, Administrator, Region V and the inspector. The last SCE/NRC meeting addressing this topic was held on February 6, 1986 and was documented in Inspection Report Nos. 50-206/86-06, 50-361, 362/86-07. As of February 7, 1986, the Liquid Effluent Activity Reduction Task Force had identified a total of 38 tasks to be accomplished in support of that task. At that time 7 of the tasks had been completed (18% complete). By May 19, 1986, the list of tasks had grown to 63 with 31 complete (49% complete). The licensee noted that the 1985 releases from San Onofre constituted 30% of the total liquid effluents released by all plants nation wide. The modifications to the Unit 2 sump and chemical waste tank had been major contributors to a reduction in the level of releases in 1986. In addition increased awareness by the staff had reduced the quantity of liquids reaching the liquid waste system. Based on current experience the licensee projected that a total of 1.67 curies would be released in 1986. This would be approximately 0.55 curies per plant which would compare favorably to the national average of 0.505 curies per plant. The licensee had initially established as a goal a factor of 2 reduction in liquid effluents, from a 1985 total of 18.1 curies to 9.1 curies in 1986. The currently projected 1986 releases would significantly better that goal. Mr. Martin commented favorably on the results achieved by the licensee.

Following the meeting the inspector obtained additional information concerning recent tests of the use of polyelectrolytes in the liquid radwaste system. In these cases, batches of previously processed liquid waste were reprocessed using polyelectrolytes. The processing with polyelectrolytes resulted in an additional decontamination factor (DF) of 10 to 14. The licensee's report noted that the use of polyelectrolytes should be instituted at all three units. It is noted that the licensee earlier concluded that without major facility changes little could be done to improve the performance of the Unit 1 liquid waste processing system because of its antiquated design. The use of polyelectrolytes could result in a significant additional reduction in the gross activity released from Unit 1 as well as from Units 2 and 3.

No violations or deviations were identified.

5. Post Accident Sampling System (PASS) - Unit 1

The Unit 1, Provisional Operating License, License No. DPR-13, in section K. requires that, "(1) By July 1, 1986 or startup from the Cycle IX

refueling outage, whichever is earlier, SCE shall install a PASS and implement a post-accident sampling program at San Onofre Unit 1." The licensee's PASS program was evaluated in terms of the requirements specified in NUREG-0737, Clarification of TMI Action Plan Requirements, section II.B.3. Postaccident Sampling Capability, Changes to Previous Requirements and Guidance section. The licensee was informed that either a containment atmosphere or a reactor coolant sample was to be collected and analyzed within the three hour time limit. The licensee was under the impression that both were required within the three hour limit. The installed PASS provides for online sample analysis (intrinsic Ge-multichannel analyzer (MCA) and chemistry) as well as grab sampling capability. With respect to the eleven items addressed in the Clarification section the following information was provided.

(1) Capability to promptly sample reactor coolant and containment atmosphere, sampling and analysis to be completed in 3 hours. The PASS design permits concurrent operation of the liquid and gas sampling and analysis system. Separate intrinsic Ge detectors were provided. At the time of the inspection the detectors were not filled with liquid nitrogen. The licensee planned to institute a weekly filling schedule. The capability to collect and analyze a sample within 3 hours had not been demonstrated. At the time of the inspection only 2 or 3 technicians had been trained (November 1985) on the PASS when it was possible to collect a sample from a pressurized reactor coolant system. Additional technicians had been trained but will require additional training with a pressurized sample source. A charging line sample was expected to be available in the May 29 - June 5, 1986 time frame. The licensee planned to replace the installed Canberra MCA with a Nuclear Data (ND) MCA. The ND system was in use in other San Onofre counting rooms and would not require additional technician training. At the time of the inspection the containment atmosphere sample pump was unable to circulate a pressurized sample. The licensee was investigating the cause of the failure.

(2) Establish an onsite radiological and chemical analysis capability for:

(a) Certain radionuclides:

PASS provides separate intrinsic Ge detectors for liquid and gas samples. The licensee compared the results of a Unit 1 grab sample, 1/2 hour laboratory count with a 1/2 hour count of reactor coolant flowing through PASS sample counting container. The licensee reported that the results were within the acceptance criteria. An evaluation of the PASS counting system was documented in Inspection Report No. 50-206/86-19.

(b) Hydrogen levels in the containment atmosphere:

The PASS containment atmosphere sample system contains calibrated hydrogen and oxygen analyzers.

(c) Dissolved gases (e.g. H_2), chloride and boron:

The PASS incorporates provisions for inline monitoring analysis for dissolved oxygen and analysis of gas evolved from a reactor coolant sample for hydrogen and oxygen. In line monitoring of reactor coolant for boron is provided. For chloride analysis see item (5) below.

(d) Inline analysis capability is addressed in items (a)(b) and (c).

(3) Coolant and containment atmosphere sampling shall not require operation of an isolated system.

Operation of an isolated system was not required.

(4) Pressurized reactor coolant samples and gas measurements.

The PASS permits collection of a pressurized liquid sample and in line measurement of dissolved oxygen and gas phase, inline measurement of coolant evolved gas phase hydrogen and oxygen.

(5) Time for performance of chloride analysis:

The PASS has the capability to collect a 50 cc undiluted reactor coolant sample in a shielded cask equipped with quick disconnects. The licensee plans to ship the cask containing the sample to General Atomics (GA) for chloride analysis. In February 1985 the ability to collect and ship a deionized water sample using the PASS was demonstrated.

(6) PASS shielding design to meet GDC 19:

The licensee stated that the shielding calculations were documented in calculation DC-713, Post Accident Dose Assessment for Unit 1. The licensee was unable to locate calculation DC-713. During the inspection the licensee concluded that four options were available to resolve the issue:

(a) Original author to recreate calculation for PASS;

(b) Prepare affidavit verifying that Unit 1 PASS calculations were based on sound analyses performed in accordance with regulatory requirements;

(c) Have an outside contractor provide independent justification of Unit 1 PASS shielding; or

(d) Experimental demonstration of Unit 1 PASS shielding adequacy.

The licensee had not selected the course to be followed at the time of the inspection.

(7) Analysis for Boron:

The PASS incorporates an inline boronometer, based on density measurement, with a range of 100-4400 ± 2% ppm boron. The boronometer had been calibrated and demonstrated operable.

Procedure S0123-III-8.3.1, Unit 1 Sampling Procedures and In-Line Analysis for the Post-Accident Sampling Systems, in Attachment 11 provides for correction of the boron reading for the presence of TSP in the containment sump.

(8) Backup capability for inline measurements:

The inline analytical capability includes MCA of undiluted reactor coolant and containment atmosphere samples, O_2 and H_2 in containment atmosphere, reactor coolant boron, pH and O_2. Diluted, depressurized, and in the case of reactor coolant degassed, samples of reactor coolant and containment atmosphere can be collected using syringes equipped with long needles. Chlorides to be analyzed by GA.

(9) Radiological and Chemical Analysis Capability:

(a) The capability of the intrinsic Ge detector and MC analyzer systems installed in the PASS was discussed in IE Inspection Report No. 50-206/86-19.

(b) The PASS analysis equipment was shielded from outside sources by installation in a below grade vault. The MC detectors were heavily shielded from sources in the PASS pit. Drawing Nos. 5178950, 5178621 and 5178601 show a ventilation line from the PASS pit to the plant vent stack which incorporates a charcoal filter.

(10) Accuracy, range and sensitivity:

Based on vendor data and licensee testing and statements the PASS had adequate accuracy, range and sensitivity.

(11) Special design considerations:

(a) Provisions had been provided for purging liquid and gas sample lines and systems. The containment atmosphere sample line and system were heat traced to minimize plate out. A sample strainer was provided for liquid samples. Flow restrictors had been installed in sample lines. Samples collected should be representative of the systems sampled and residues of sampling activities can be returned to the containment atmosphere or sump.

(b) Ventilation exhaust from the PASS pit was through charcoal and HEPA filters.

Matters remaining open at the time of the inspection:

(Open) Followup (50-206/86-21-01) - Demonstration of capability to collect and analyze containment atmosphere or reactor coolant samples within a three hour period.

(Open) Followup (50-206/86-21-02) - Demonstration of the capability of the containment atmosphere sampling pump to collect and return a containment atmosphere sample to the containment when the containment is at design basis accident pressure.

(Open) Followup (50-206/86-21-03) - Completion of training of personnel in the operation of the PASS.

(Open) Followup (50-206/86-21-04) - Verification that the Unit 1 PASS can be operated under accident conditions while maintaining personnel exposures less than GDC-19.

(Closed) Followup (50-206/85-08-22)

Licensee report of the flooding of the Unit 1 PASS pit. The licensee's corrective actions were examined.

This matter is considered closed.

(Closed) Followup (50-206/85-HN-01) - PASS Followup

This matter is considered closed.

Documents examined during the inspection:

Memorandum: Knapp to Reilly, December 20, 1984, Completion of JTR-072, ALARA Evaluation Unit 1 Undiluted Grab Sample, including attachments:

REP-00050, Unit 1 PASS Chemistry Sampling; ALARA Pre-Job Estimate, Emergency Chemistry Sample-Undiluted RC; and Memorandum, M. Lewis to J. Madigan; Subject: Technical Basis for Undiluted RC Grab Sampling Controls, dated December 11, 1984.

Procedures:

S0123-G-19, PASS Program

S0123-III-8.0, Post-Accident Sampling Program and Analytical Requirements;

S0123-III-8.1 Post-Accident Sampling System Routine Surveillances;

S0123-III-8.2.1 Unit 1 Purge and Fill of Post-Accident Sampling System; and

S0123-III-8.3.1 Unit 1 Sampling Procedures and In-Line Analysis for the Post-Accident Sampling System

No violations or deviations were identified.

6. Organization and Management Controls: Radiation Protection and Radwaste

A. Organization and Staffing

The organizational structure had not changed significantly since the last inspection in this area. Staffing had deemphasized the use of contractors for routine operations with an increase in Edison employees. At the time of the inspection 143 of 155 Edison positions were filled. A total of 62 Health Physics (HP) technicians were on staff of which approximately 8 were not ANSI qualified. In support of the two concurrent outages (Units 1 and 2), the contract staff consisted of about 50 HP techs and 33 dosimetry clerks onsite. The automated Radiation Exposure Permit (REP) entry process now handles about 70% of all entries significantly reducing manpower requirements. At the time of the inspection the licensee was instituting the use of bar code identified TLD's which permits computer identification of TLD's with user badges. When completed this transition will further reduce manpower requirements.

B. Health Physics Manager

The incumbent had adequate responsibility, authority and management support to ensure control of radiation protection related activities and to develop and implement programs in support of radiation protection and ALARA (see reference to Supervisor Monitoring Program report section 7.I.).

C. Identification and Correction of Weaknesses

The licensee's HP staff had been effective in the identification and correction of weaknesses and problems. The response to the Fuel Flea problem and the sensitivity to concerns of inexperienced radiation workers were demonstrative in this area.

Organization and management aspects of the chemistry program will be examined during a subsequent inspection, (50-206/86-21-05, 50-361, 362/86-18-01).

No violations or deviations were identified.

7. Occupational Exposures During Extended Outages (Unit 2)

A. Audits and Appraisals

Licensee audit and surveillance reports related to radiation protection were reviewed for 1986 to the date of the inspection.

Field Surveillance Report (FSR) HP-007-86, 1/4/86, Bioassay; Verification of Iodine Protection Factors - examined uptakes of GMR canister users.

FSR, HP-008-86, 1/7/86, Tour and Observation of Health Physics Related Activities - Unit 1 sphere.

FSR, HP-019-86, 1/10/86, Adequacy of Controls - IE Notice No. 85-92.

FSR, HP-034-86, 1/15/86, Unit 1 Containment, Posting and Housekeeping.

FSR, HP-038-86, 1/28-31/86, Instrument Calibration Program - 18 instruments checked.

FSR, HP-042-86, 1/21/86, Radioactive Materials Control/Radwaste Unit 1, verify sample collection for radwaste characterization and classification.

FSR, HP-074-86, 2/5/86, Radioactive Materials Control, preparation of semiannual effluent and radwaste report.

FSR, HP-113-86, 2/27/86, Surveys and Posting, Unit 2/3 truck bay - one weeks records.

FSR, HP-134-86, 2/28/86, Control and Laundering of Protective Clothing, effectiveness of laundry and surveys.

FSR, HP-159-86, 3/27/86, Radioactive Material Control, Storage of radioactive material, surveillance of outdoor storage.

FSR, HP-240-86, 5/9/86, Unit 1 Containment, Posting and housekeeping.

QA Audit Report, SCES-059-85, Unit 1, 2&3, Operational HP Audit addressed T.S. items.

Three Corrective Action Requests (CARs) and one Problem Review Report were generated as a result of the audit. The CARs addressed the failure to inventory a key locker daily, an incorrect survey instrument calibration sticker and failure of the lead instrument technician to complete the required qualification manual. The Problem Report addressed a missing instrument background and source check chart.

B. Changes

With respect to the Unit 2 outage the licensee reported that increased HP experience had resulted in improved containment coordination and overall improved performance by the staff. The crew concept of operations, crews of 6 to 8 HP techs and foremen which rotate through shift changes as a group, had been instituted shortly before the inspection. The goal was to achieve improved control of the technician work force and delegate some of the administrative responsibility from the HP supervisor and general foreman to the crew foremen.

C. Planning and Preparation

Because of the Fuel Flea problem the training for workers was changed to address the added monitoring and revised step off pad and

protective clothing requirements. The licensee reported that a few Fuel Fleas had been found in Unit 2 but that it had been determined that they were all of Unit 3 origin. The rapid succession of outage activities, (e.g. Unit 3 outage completion, transformer outage and continuing Unit 1 outage) had stressed the HP staff requiring 6 day, 10 and 12 hour shifts. The heavy work load limited the time available to prepare for the Unit 2 outage. The lack of preparation time was compensated by the experience of the staff.

D. Training and Qualification of New Personnel

Specialized training was provided in the areas of nozzle dam installation, steam generator work and Fuel Flea control measures. The contract technician staff received one weeks training which included Red Badge training and completion of a qualification manual. The senior contract technician representative, with three years site experience, functioned as the assistant to the site HP coordinator.

E. External Exposure Control

The TLD program, using Panasonic TLD's and readers and licensee developed computer software, was NVLAP certified. Neutron badges and finger rings were provided by Landauer. At the time of the inspection the Automatic Badge Issue System (ABIS) was being implemented. The system permits real time TLD issue without prior assignment of TLDs to specific worker Red Badges. Badges and TLD's were provided with laser readable bar codes which were processed by ABIS and up loaded automatically in real time to the Songs Radiation Control (SRC) computer. ABIS transactions were hard copy protected. If communications between ABIS and SRC is lost ABIS stores the data and upload to SRC when communications are restored.

The licensee expects to reduce badge change time from 40-50 hours to 24 hours. The validity of the TLD attached to any Red Badge was identified by the color of the strap attaching the TLD to the badge. In addition the magnetic strip on the Red Badge was recorded with the current TLD identification and access was denied if the Red Badge coding was not current. The licensee tested the laser/bar code readers with up to 3,000 TLD's. No failures to read correctly were identified. The licensee expects to fully implement the system by mid June 1986.

Administrative limits of 900 mrem quarter/2500 mrem year were used. Increases above these levels require review by progressively higher management levels. The upper administrative limits were 2250 mrem/quarter and 4500 mrem/year. Station Manager approval is required to increase these limits to 3000 mrem/quarter and 5000 mrem/year. The licensee reported that this level of exposure had not been authorized.

During outages, daily exposure summaries were prepared. In addition weekly (non outage periods - monthly) dosimetry reports were prepared using the REMS (Radiation Exposure Monitoring Summary).

Access control qualification reports were prepared on the same frequency using CIRCUS (Computer Information Radiation Control Universal Summary).

The exposure summaries flag individual exposures at 80% of the applicable administrative limit. HP review of planned work activity was required to assure that the limit would not be exceeded.

Normally from 6-7000 TLD's were processed monthly with 13,000 at the peak for a total of 5-6,000 badged personnel. The quality assurance program for dosimetry devices includes verification of TLD calibration every 18 months and pocket ionization chambers at 6 month intervals. Records of personnel exposures were stored in a computer data base and were available through terminals onsite. Hard copy records including termination letters were recorded on microfiches. The licensee relies on historical and current computer records except for dose extensions when a hard copy of a Form 4 or equivalent must be reviewed. Microfiche records of exposure for the year ending December 31, 1985 and the quarters ending March 31 - April 1, 1986 and May 29, 1986 were reviewed. No exposures in excess of regulatory limits were identified.

F. Internal Exposures

Helgeson "Quicky" and bed-type whole body counters were available onsite. The bed counter was out of service due to construction activities on the 70 foot elevation of the Unit 2/3 auxiliary building access control area. The "Quicky" counters were used to substitute for the bed counter by increasing the counting time to four minutes. The licensee stated that with a four minute count the accuracy and sensitivity of the "Quicky" counters compared favorably with the bed counter. If the more limited computer nuclide library of the "Quicky" counters was not adequate the data could be transferred to Helgeson for analysis. The computer program flags body burdens at 1% or 3% of the ICRP MPBB depending on the nuclide. An internal dose assessment was performed in cases where MPBB was greater than 5% or when the 7 day MPC hour exposure exceeded 30. MCP hour data was based on REP entry/air sample data as well as individual airborne area entry records maintained on specific tasks. The dosimetry computer system tracks MPC hour exposure as well as radiation exposures. Daily printouts of exposure data include the highest 100 exposures both for whole body and MPC hour exposures. Individuals at 30 MPC hours exposure per 7 days or above were denied entry. Investigation of MPC hour exposures is conducted on a case by case basis and may start as low as 10 or 20 MPC hours. The investigation involves individual interviews to determine specific information related to work location and duration. If the investigation establishes that the high MPC hour value was due to incorrect identification of the proper air sample data or work duration the dosimetry group can correct the records to reflect the proper exposure. If the exposure appears to be valid HP engineering evaluates the exposure. Records of MPC hour exposures for the period ending April 1, 1986 were examined. The licensee stated that no exposures in excess of 40 MPC hours had occurred.

H. Control of Radioactive Materials and Contamination, Surveys and Monitoring

Unit 2/3 HP Foreman logs were examined.

Title: Watch Engineers Log Sheet, from No. 544001 to No. 544050
Unit 2/3 H.P. Foreman Log Book from 2/22/86 to 3/31/86

Pages 544001 to Page 544040 examined.

Title: Watch Engineers Log Sheets, from No. 551301 to No. 551350
Unit 2/3 H.P. Foreman Log Book from 3/31/86 to 5/8/86

Pages 551312 to page 551327 examined.

Title: Watch Engineers Log Sheets, from No. 545001 to No. 545050

Pages 545001 (5/8/86) to page 545023 (5/28/86)

The logs were neat, professional in character, written in ink, documented formal shift change/relief, staffing status, key control/inventory and provided brief entries of activities in progress or planned.

Survey records related to the Unit 2 outage were examined for the periods March 22 (19 pages), April 10 (87 pages) and May 6, 1986 (69 pages). The survey records provided adequate documentation of dose rate, contamination and airborne activity measurements for both routine and special surveys.

I. Maintaining Occupational Exposures ALARA

In response to an INPO evaluation, the licensee was implementing a "Supervisor Monitoring Program" to achieve greater supervisory involvement in improving radiological work practices. The program will involve about 400 supervisors in the compliance, emergency preparedness, health physics, maintenance, security and project (contract supervision) work groups. The only work groups excluded include operations and technical division. In support of the program the 400 supervisors received three hours training. Each supervisor will be required to perform and document one surveillance every 6 months. The surveillances address REP compliance, radwaste minimization, posting and barricades and ALARA. Surveillances will be documented on prepared check sheets which will be reviewed by HP engineering and letters of commendation or requiring corrective action will be sent to the supervisor of the employees who were the subject of the surveillance. The supervisors performing monitoring activities will not necessarily monitor the activities of workers in the same organizational unit to which they belong (e.g. an emergency preparedness supervisor may monitor the activities of a maintenance work group). The program had just been initiated at the time of the inspection. The licensee's findings will be reviewed during a subsequent inspection (50-206/86-21-06).

The station ALARA goal of 1000 man rem was addressed in IE Inspection Report No. 50-206, 361, 362/86-02. At the end of April 1986 the Unit 2 outage exposure was 224.114 man rem vs. a projected outage exposure of 267.7 man rem. The station total to April 30, 1986 was:

	Collective Dose (man rem)	Goal (man rem)
Unit 1	416.177	639.5
Units 2/3	221.472	360.6

Only one group had exceeded the ALARA goal. This resulted from rework of approximately 500 Unit 2 steam generator tube plugs. None of the robotic devices which could have been used were available at the time the work was performed. Management decided not to increase the ALARA exposure goal as a result of the increased work. The craftworkers were given 3-4 days classroom and hands on training in preparation for the task.

Beginning in January 1986, the licensee implemented a procedure (S0123-VII-3.3 Methods for Establishing Radiation Exposure Goals) which requires licensee and contractor work groups to prepare and submit quarterly and annual radiation exposure goals which in total do not exceed the station goal of 1000 man rem.

Another task which exceeded the estimated exposure was the Unit 2 nozzle dam installation. The exposure was estimated at 11.5 man rem and 27.017 man rem was received. In addition none of the dams were successfully installed.

The licensee was evaluating several possible causes:

1. Provide training closer to the period of use (training occurred two months before use);

2. Possible poor dam storage practices; and

3. Engineering was evaluating the seating of the dams.

The ALARA program evidenced an aggressive and innovative approach to the minimization of exposure.

No violations or deviations were identified.

8. Dewatering Refueling Cavity - Unit 1

During the period May 11-13, 1986, the licensee dewatered the lower refueling cavity, Unit 1, by pumping the contents to the Unit 1 spent fuel pool upender cavity. The liquid was transferred through a temporary line which passed through the Unit 1 equipment hatch and crossed portions of the turbine deck. The temporary line consisted of a pressure tested fire hose. The fire hose was encased in plastic sleeving which was further encased in sealant welded PVC pipe. Fire hose couplings were

sealed with RTV sealant. The hose piping assembly was supported in a wooden trough, cribbed to provide gravity drainage to the spent fuel pool. The wooden trough was of sufficient strength to support shielding lead blankets if required. The 10 CFR 50.59(b) safety evaluation contained in Temporary Modification package TFM 1-86-FHS-001, special maintenance procedure S01-SPM-2, Rev. 0, Dewatering Lower Refueling Cavity and records of surveys performed during the transfer were reviewed. The transfer was accomplished without incident.

No violations or deviations were identified.

9. Review of Licensee Reports

The inspector reviewed Licensee Event and Special Reports related to radiation protection and chemistry matters. The review verified that reporting requirements were met, causes identified or under investigation, that corrective actions appeared appropriate and that LER forms were complete.

Docket No.	50-206	50-361	50-362
	85-05-X0	84-10-X0	84-06-X0
	86-06-L0	84-57-L0	84-09-X0
		84-73-L0	85-05-X0
		84-74-L0	85-15-L0
		84-76-L0	86-04-L0
		84-77-L0	
		86-02-L0	
		86-03-L0	
		86-06-L0	
		86-10-L0	

The review of the timely, 1985 Annual Radiological Environmental Operating Report shows that monitoring, sampling, analytical procedures and counting methods were performed in accordance with the San Onofre Technical Specifications for Radiological Environmental Monitoring.

Samples were taken from 40 indicator locations of 5 miles or less distance from the site and 25 control locations at distances greater than 5 miles. One control station is 45 miles relative to Units 2 and 3 midpoint. Samples included air samples, food crops, ocean water, drinking water, soil, fish, crustacia, etc. Ambient radiation was measured using TLD devices.

The analytical data shows that material released from the plant to unrestricted areas, was, for the most part, below the level of detection. Those samples that showed activity attributable to plant operations were at levels significantly below reporting levels required by the technical specifications. The inspector concurred with the licensee's conclusion that the impact of San Onofre operations on the surrounding environment was negligible during 1985 operations.

No violations or deviations were identified.

10. Followup on IE Information Notices

The inspector verified receipt; review for applicability and initiation or completion of action, if required, with respect to IE Information Notices Nos. 86-20, 86-22 and 86-23.

No violations or deviations were identified.

11. Facility Tours

The Units 1, 2 and 3 protected/restricted area boundaries were toured and surveyed using an ion chamber survey instrument (NRC-015843, due for calibration July 11, 1986). The Unit 1, PASS facility, restricted area and all levels of the Unit 2/3 auxiliary/radwaste building and the Unit 2 containment were toured. Confirmatory surveys were performed.

No violations or deviations were identified.

12. Exit Interview

The scope and findings of the inspection were discussed with the individuals denoted in Section 1. The licensee was informed that no violations or deviations were identified. In addition the inspector commented that Mr. J. Martin, Regional Administrator, Region V, had been favorably impressed by the effectiveness of the program to reduce liquid effluents.

With respect to the Unit 1 PASS the inspector commented that:

1. The hands on training provided to technicians had not addressed the three hour time limit to collect and analyze either a containment atmosphere or an RCS sample;

2. The containment atmosphere sampling pump was unable to draw a containment atmosphere sample at the time of the inspection. The inspector also noted that the containment atmosphere sampling system should be capable of operation when containment is at the design basis accident pressure and temperature;

3. The Unit 1 license requires that the PASS be operable by startup from Cycle IX refueling or July 1, 1986, whichever occurs first. It was noted that in the event that startup of Unit 1 was delayed the licensee might wish to consider requesting an extension of the July 1, 1986, date from NRR; and

4. The PASS pit shielding calculation used to establish that post-accident sampling could be accomplished within the guidelines of GDC-19 could not be located.